

Improving the usefulness of *Mucuna* for smallholder farmers



- Mucuna / velvet bean (*Mucuna pruriens* var. *utilis*)
 - annual, very long twining stems, very large seed (easy to get seed and easy to establish)
- Green manure and forage crop, sub-humid Zimbabwe, larger scale
- Smallholders (few hectares arable + communal grazing) - mucuna hay as supplement in dry season
- But some challenges with hay: drying of thick stems, leaf loss, late harvesting (labour constraints), storage, and the need for chopping when fed
- Alternative - feed mucuna seed
- Seed is unpalatable unless milled
 - but milling bears a cost
 - mill owners reluctant (1^o maize grain)

1. How does soaking mucuna seed compare to grinding as a means of improving palatability?

Table 1: Mean Mucuna bean intake over 4h of cows fed 5kg seed

Diet	VFI (kg)(dry bean equivalent)
Whole dry beans	0.01
Ground beans	1.59
Soaked beans (48h in water)	3.59
Standard error of the difference	0.294
P-value	<0.001

Soaking is not only a good alternative to milling, but considerably improves VFI.

2. Can seed production be increased by using a support crop?



Sole (unsupported) mucuna

1.97 t/ha seed



With maize at 0.6 m x 0.9 m

3.15 t/ha seed

Enabling mucuna to elevate its canopy for better light interception significantly ($p > 0.05$) increased seed yield.

3. Does mucuna also have potential for dryer areas?

Grown in a semi-arid area near Bulawayo and compared with 2 species of similar growth habit and some drought resistance:

lablab (*Lablab purpureus*)

cowpea (*Vigna unguiculata*), trailing type

Forage species	Biomass (t DM/ha)	% target population
mucuna	2.3	87.7
lablab	0.9	43.6
cowpea	0.7	55.4
Sed	0.32	4.74
P-value	<0.001	<0.001

Mucuna outyielded lablab and cowpea. Some moisture stress during establishment – mucuna's larger seeds may have been of advantage.

Conclusion

Mucuna adoption by smallholder farmers could be enhanced by:

- increasing seed yields by using widely spaced maize as a support crop
- improving palatability by feeding soaked seed (instead of milled seed)
- extending the growing of mucuna into dryer (semi-arid) areas.